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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
NGUYEN, CHUONG P	

ART UNIT	PAPER NUMBER
3665	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/575,768	NENNINGER ET AL.
	Examiner	**Art Unit**
	CHUONG NGUYEN	3665

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 July 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *14,15,19-31 and 33* is/are pending in the application.

5a) Of the above claim(s) *22-26* is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *14,15,19-21,27-31 and 33* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The indicated allowability of claims 31-35 are withdrawn in view of the newly discovered reference(s) to US 5,925,083.

2. Any inconvenient to the Applicant is deeply regretted.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 31 and 33 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 31, the parameter "l" in the single-track model as claimed was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. What exactly is the parameter "l"? Reviewing the specification does not result in any description for such parameter "l".

Regarding claim 33, the claimed subject matter "the contact patch forces FN of the inner wheel and the outer wheel are measured at least one of from a sensor system and from a ratio of

tire slip values of the wheels" fails to comply with the written description requirement. Per interpretation, the contact patch forces can be measured by either from a sensor system or from a ratio of tire slip values of the wheels or from both (emphasis added) (i.e. "at least one of" is interpreted as one or more). However, in the specification, page 6, lines 13-17 described that the contact patch forces can be measured by either from a sensor system or from a ratio of tire slip values of the wheels, not from both (emphasis added); therefore, the specification fails to describe such subject matter as claimed in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 14-15, 19-21, 27-30, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schramm et al (WO 9967114, equivalent to IDS reference – US 6,253,123).

Regarding claim 14, Schramm et al disclose in Fig 2-5 a method for rollover stabilization of a vehicle in a critical driving situation, comprising: ascertaining a mass of the vehicle (i.e. mass quantity M; second height quantity hc) (Fig 3-4; Fig 5 "501"; col 2, line 66 – col 3, line 8; col 3, line 66 – col 4, line 5; col 9, lines 15-19; col 10, lines 45-60; col 11, line 59 – col 12, line 12; col 13, line 39+; claims 5-6); executing a rollover stabilization algorithm (i.e. processor 309), the rollover stabilization algorithm intervening in a driver operation in a critical situation using an actuator (i.e. retarder 312; actuators 313*ixj*) in order to stabilize the vehicle (Abstract; Fig 3-4; Fig 5 "501, 505"; col 9, line 16 – col 13, line 62), estimating information on a center of gravity of the vehicle (i.e. first height quantity h) (Fig 4; Fig 5 "501"; col 3, lines 21-57; col 6, lines 38+; col 11, line 59 – col 12, lines 12; col 13, line 39+; claim 5), wherein the rollover stabilization algorithm (i.e. processor 309) is executed as a function of the vehicle mass and the information on the center of gravity of the vehicle (Fig 4; Fig 5 "501"; col 11, line 59 – col 13, line 45; claims 5-6), and wherein the information on the center of gravity of the vehicle is derived from an estimated characteristic speed (Fig 2-4; col 3, lines 21-57; col 6, line 38 – col 7, line 60; col 11; col 9, lines 20-47; col 11, line 58 – col 2, line 1). Schramm et al also disclose the center of gravity of the vehicle, including a height of the center of gravity, is estimated from contact patch forces of wheels of the vehicle at an inner wheel and an outer wheel during cornering (Fig 2-4; col 3, line 21 – col 4, line 5; col 6, line 38 – col 7, line 60; col 9, lines 20-47; col 11, line 58 – col 12, line 1; claim 5). In addition, although Schramm et al do not explicitly disclose at a high mass center of gravity, a contact patch force at the outer wheel is comparatively higher than for a low

mass center of gravity (at an equal mass of a payload) at a same transverse acceleration, wherein because of an increased tendency of the vehicle to roll over, the outer wheel is more greatly unloaded at the high mass center of gravity; however, such subject matter is obvious and well known in the art of rollover. Further, although Schramm et al do not explicitly disclose from a ratio of the contact patch forces of the inner wheel and the outer wheel, the height of the center of gravity of the vehicle is at least qualitatively estimated. However, since the height of the center of gravity of the vehicle is at least qualitatively estimated (emphasis added); therefore, it would have been obvious to one of ordinary skill in the art to extrapolate the determined forces (i.e. FL, FR) acting on the wheels as taught by Schramm et al to obtain the ratio of the contact patch forces, and qualitatively estimated (emphasis added) the height of the center of gravity of the vehicle (i.e. Schramm et al shows that the height of the center of gravity of the vehicle is qualitatively estimated) (Fig 2-4; col 3, line 21 – col 4, line 5; col 6, line 38 – col 7, line 60; col 9, lines 20-47; col 11, line 58 – col 12, line 1; claim 5).

Regarding claim 15, Schramm et al disclose in Fig 3 the mass of the vehicle is estimated using an algorithm (i.e. mass quantity processor 308) (col 9, lines 15-19).

Regarding claim 19, Schramm et al disclose in Fig 2-4 the information on the center of gravity of the vehicle is ascertained from the estimated characteristic speed and from a ratio of the contact patch forces of opposite wheels during cornering (col 3, lines 21-57; col 6, line 38 - col 7, line 60; col 11; col 9, lines 20-47; col 11, line 58 - col 2, line 1; claim 5).

Regarding claim 20, Schramm et al disclose in Fig 3-5 one of an indicator variable or a characteristic property (i.e. reads on two limit values of vehicle speed vr, vk) of the rollover stabilization algorithm is determined as a function of one of the mass of the vehicle or the mass

of the vehicle and information on the center of gravity of the vehicle, the release of deactivation of the stabilization intervention being a function of the indicator variable (Fig 5 “501-503”; col 2, line 57 – col 4, line 5; col 10, line 45+; col 11, line 44 – col 13, line 62; claims 5-6).

Regarding claims 21 and 29, Schramm et al disclose in Fig 3-5 one of a control threshold value, a system deviation or a controlled variable (i.e. reads on two limit values of vehicle speed vr, vk) of the rollover stabilization algorithm is determined as a function of one of the mass of the vehicle or the mass of the vehicle and the information on the center of gravity of the vehicle (Fig 5 “501-503”; col 2, line 57 – col 4, line 5; col 10, line 45+; col 11, line 44 – col 13, line 62; claims 5-6).

Regarding claim 27, Schramm et al disclose in Fig 3-5 information is estimated on a center of gravity of the vehicle (i.e. first height quantity h) (Fig 4; Fig 5 “501”; col 3, lines 21-57; col 6, lines 38+; col 11, line 59 – col 12, lines 12; col 13, line 39; claim 5), wherein the rollover stabilization algorithm is executed as a function of the vehicle mass and the information on the center of gravity of the vehicle ((Fig 4; Fig 5 “501”; col 11, line 59 – col 13, line 45; claims 5-6), wherein the information on the center of gravity of the vehicle is at least one of derived from an estimated characteristic speed, and ascertained from a ratio of contact patch forces of opposite wheels during cornering (col 3, lines 21-57; col 6, line 38 - col 7, line 60; col 11; col 9, lines 20-47; col 11, line 58 - col 2, line 1; claim 5), and wherein one of an indicator variable or a characteristic property (i.e. reads on two limit values of vehicle speed vr, vk) of the rollover stabilization algorithm is determined as a function of one of the mass of the vehicle or the mass of the vehicle and information on the center of gravity of the vehicle, the release of deactivation

of the stabilization intervention being a function of the indicator variable (Fig 5 “501-503”; col 2, line 57 – col 4, line 5; col 10, line 45+; col 11, line 44 – col 13, line 62; claims 5-6).

Regarding claim 28, Schramm et al disclose in Fig 2-4 the information on the center of gravity of the vehicle is ascertained from a ratio of contact patch forces of opposite wheels during cornering (col 3, lines 21-57; col 6, line 38 - col 7, line 60; col 11; col 9, lines 20-47; col 11, line 58 - col 2, line 1; claim 5).

Regarding claim 30, Schramm et al disclose in Fig 2-5 a method for rollover stabilization of a vehicle in a critical driving situation, comprising: ascertaining a mass of the vehicle (i.e. mass quantity M; second height quantity hc) (Fig 3-4; Fig 5 “501”; col 2, line 66 – col 3, line 8; col 3, line 66 – col 4, line 5; col 9, lines 15-19; col 10, lines 45-60; col 11, line 59 – col 12, line 12; col 13, line 39+; claims 5-6); executing a rollover stabilization algorithm (i.e. processor 309), the rollover stabilization algorithm intervening in a driver operation in a critical situation using an actuator (i.e. retarder 312; actuators 313*ixj*) in order to stabilize the vehicle (Abstract; Fig 3-4; Fig 5 “501, 505”; col 9, line 16 – col 13, line 62), estimating information on a center of gravity of the vehicle (i.e. first height quantity h) (Fig 4; Fig 5 “501”; col 3, lines 21-57; col 6, lines 38+; col 11, line 59 – col 12, lines 12; col 13, line 39+; claim 5), wherein the rollover stabilization algorithm (i.e. processor 309) is executed as a function of the vehicle mass and the information on the center of gravity of the vehicle (Fig 4; Fig 5 “501”; col 11, line 59 – col 13, line 45; claims 5-6), and wherein the information on the center of gravity of the vehicle is ascertained from a ratio of contact patch forces of opposite wheels during cornering (i.e. obvious to one of ordinary skill in the art to extrapolate the determined forces (i.e. FL, FR) acting on the wheels as taught by Schramm et al to obtain the ratio of the contact patch forces; and from such ratio, the

information on the center of gravity of the vehicle is ascertained) (Fig 2-4; col 3, lines 21-57; col 6, line 38 – col 7, line 60; col 9, lines 20-47; col 11, line 58 – col 12, line 1; claim 5). Schramm et al also disclose the center of gravity of the vehicle, including a height of the center of gravity, is estimated from contact patch forces of wheels of the vehicle at an inner wheel and an outer wheel during cornering (Fig 2-4; col 3, line 21 – col 4, line 5; col 6, line 38 – col 7, line 60; col 9, lines 20-47; col 11, line 58 – col 12, line 1; claim 5). In addition, although Schramm et al do not explicitly disclose at a high mass center of gravity, a contact patch force at the outer wheel is comparatively higher than for a low mass center of gravity (at an equal mass of a payload) at a same transverse acceleration, wherein because of an increased tendency of the vehicle to roll over, the outer wheel is more greatly unloaded at the high mass center of gravity; however, such subject matter is obvious and well known in the art of rollover. Further, although Schramm et al do not explicitly disclose from a ratio of the contact patch forces of the inner wheel and the outer wheel, the height of the center of gravity of the vehicle is at least qualitatively estimated. However, since the height of the center of gravity of the vehicle is at least qualitatively estimated (emphasis added); therefore, it would have been obvious to one of ordinary skill in the art to extrapolate the determined forces (i.e. FL, FR) acting on the wheels as taught by Schramm et al to obtain the ratio of the contact patch forces, and qualitatively estimated (emphasis added) the height of the center of gravity of the vehicle (i.e. Schramm et al shows that the height of the center of gravity of the vehicle is qualitatively estimated) (Fig 2-4; col 3, line 21 – col 4, line 5; col 6, line 38 – col 7, line 60; col 9, lines 20-47; col 11, line 58 – col 12, line 1; claim 5).

Regarding claim 33, as best understood, Schramm et al disclose the contact patch forces FN of the inner wheel and the outer wheel are measured at least one of from a sensor system (i.e.

from wheel rpm sensors) and from a ratio of tire slip values of the wheels, and wherein the wheel slips are determined using an ESP sensor system having rotary speed sensors (i.e. Schramm et al disclose the wheel slips can be determined from the wheel rpm sensors. Thus obviously, a ratio of tire slip values of the wheels can be extrapolated from such wheel slips) (Fig 2-4; col 3, line 21 – col 4, line 5; col 6, line 38 – col 7, line 60; col 8, lines 1-13; col 9, lines 1-19; claim 5).

8. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schramm et al as applied to claim 14 above, and further in view of Ackermann (US 5,925,083).

Regarding claim 31, although Schramm et al do not explicitly disclose when the center of gravity is shifted upwards, a vehicle demonstrates a more strongly understeering driving behavior, and consequently has a lower characteristic speed, and vice versa, wherein when there is a shifting of the center of gravity to the rear (at a constant mass and a constant height of the center of gravity), the vehicle demonstrates a less understeered vehicle behavior and consequently a greater characteristic speed vch, and vice versa; however, such subject matter is well known in the art of suspension design (Appliant's specification, page 10, line 27 – page 11, line 3). Also, although Schramm et al do not explicitly disclose from a deviation of the estimated characteristic speed from a nominal estimated speed, at least qualitatively information is obtained on a position of the load, including at least one of a height of the center of gravity and a position in a longitudinal direction of the vehicle as claimed; however, since <u>qualitatively information</u> is obtained on a position of the load (emphasis added); therefore, it would be obvious that one of ordinary skill in the art can qualitatively estimate at least one of a height of the center of gravity and a position in a longitudinal direction of the vehicle as taught by Schramm et al for obtaining <u>qualitatively information</u> on a position of the load (emphasis added)

(Fig 2-4; col 3, line 21 – col 4, line 5; col 6, line 38 – col 7, line 60; col 9, lines 20-47; col 11, line 58 – col 12, line 1; claim 5). In addition, Schramm et al do not explicitly disclose the step of calculating yaw rate of the vehicle according to the so-called “single-track model” as claimed. Ackermann teaches in the same field of endeavor the step of calculating yaw rate of the vehicle according to the so-called "single-track model" (i.e. by solving the yaw velocity r_{stat}) (col 8, lines 28-40). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate such step of calculating yaw rate of the vehicle as taught by Ackermann in the method of Schramm et al because it does no more than yield predictable results of determining the yaw rate of the vehicle to stabilize a vehicle since it has been held that the combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results (MPEP 2143).

9. While patent drawings are not drawn to scale, relationships clearly shown in the drawings of a reference patent cannot be disregarded in determining the patentability of claims. See In re Mraz, 59 CCPA 866, 455 F.2d 1069, 173 USPQ 25 (1972).

Response to Arguments

10. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. The cited prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHUONG NGUYEN whose telephone number is (571)272-3445. The examiner can normally be reached on M-F, 10:00 - 7:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Q. Nguyen can be reached on 571-272-6952. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John Q. Nguyen/
Supervisory Patent Examiner, Art Unit 3665

/CN/